

SPIRIT LAKE INDUSTRIAL PARK (PWSNO 1090212) SOURCE WATER ASSESSMENT REPORT

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State of Idaho Department of Environmental Quality

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SOURCE WATER ASSESSMENT FOR SPIRIT LAKE INDUSTRIAL PARK

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your particular drinking water source is based on a land use inventory within the well recharge zone, your water quality history, construction characteristics associated with your well or wells, and site specific sensitivity factors associated with the aquifer your water is drawn from.

This report, *Source Water Assessment for Spirit Lake Industrial Park* describes the public drinking water source, potential contaminant sites located within in the well recharge boundaries, and the susceptibility (risk) that may be associated with any associated potential contaminants. DEQ used a refined computer model approved by the EPA to map the boundaries of the well recharge area into time of travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for systems drawing from the Rathdrum Prairie Aquifer. The computer model used data assimilated by DEQ from a variety of sources including well logs in the vicinity of the Spirit Lake Industrial Park well.

This assessment, taken into account with local knowledge and concerns, should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Potential Contaminant Inventory. The Spirit Lake Industrial Park public water system serves 2 houses, a laundromat and convenience store about 1 mile north of Spirit Lake, Idaho. The recharge zone for the well is a narrow corridor encompassing about 36.5 acres and curving north, then westward from the well. The recharge delineation is divided into 0 to 3, 3 to 6, and 6 to 10 year time of travel zones.

Potential contaminant sources documented inside the well recharge zone include Highway 41, and petroleum storage tanks for the gas station. Major transportation corridors like the highway can be sources of all classes of regulated contaminants carried by trucks and semis. Contaminants of concern associated with petroleum storage are synthetic and volatile organic compounds. Most of the land inside the delineation boundaries is undeveloped woodland.

Water Quality History. Spirit Lake Industrial Park, under regulation as a non-community transient public water system since 1994, is required to monitor quarterly for bacterial contamination. Only one sample has tested positive for total coliform bacteria. The presence of bacteria was not confirmed in subsequent testing. The system tests annually for nitrate. Nitrate at a concentration of 0.142 mg/l was detected in a sample taken in March 1996. It was not detected in other years. The Maximum Contaminant Level (MCL) for nitrate is 10 mg/l.

Well Construction. The Spirit Lake Industrial Park well was drilled in 1989 to a depth of 462 feet. When the well was drilled, the casing extended more than the required 18 inches above ground. The area around the well was later re graded. The 8-inch well casing now extends 69 inches above the dirt floor of 5.5-foot deep pit. The pit is covered with a wood frame building, which has metal siding, a wood floor and a locked door. Current Idaho Department of Water Resources (IDWR) standards and Idaho Department of Environmental Quality rules for public drinking water systems forbid the location of a drinking water well in a pit. The surface seal and casing are completed in permeable soil types typical of the Rathdrum Prairie Aquifer. The static water level in the well is 395 feet below ground surface.

Well Site Characteristics. Soils in the well recharge zone are generally well drained. Well-drained soils provide little protection against migration of contaminants toward the well. The soil strata above the water table in the well are composed of sand, gravel and boulders without a thick layer of fine sedimentary soils to retard the vertical transport of potential contaminants.

Susceptibility to Contamination. A susceptibility analysis of the Spirit Lake Industrial Park well, incorporating information from the public water system file and the potential contaminant inventory, ranked the well moderately susceptible to all classes of regulated contaminants. Natural risk factors associated with local geology account for most of the points marked against the well. The susceptibility analysis worksheet for your well on page 6 of this report shows how your well was scored. Formulas used to compute the final susceptibility scores are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

The 186 public water systems in Idaho that draw water from the Rathdrum Prairie Aquifer should consider forming a regional group to represent their interests before state, county and municipal governing bodies when regulatory tools like zoning overlays, or enactment of building codes are the most appropriate ground water protection measures. The goal of source water protection is to maintain current water quality for the future despite the changes we can expect with population growth in North Idaho

The Spirit Lake Industrial Park well has produced high quality water throughout its sampling history. The well was originally constructed in compliance with Department of Water Resources standards, but subsequent re-grading has jeopardized the integrity of this expensive investment. It is essential to have plans for changes to the well and water system approved in advance of construction, and to adhere to standards established to protect the aquifer from contamination.

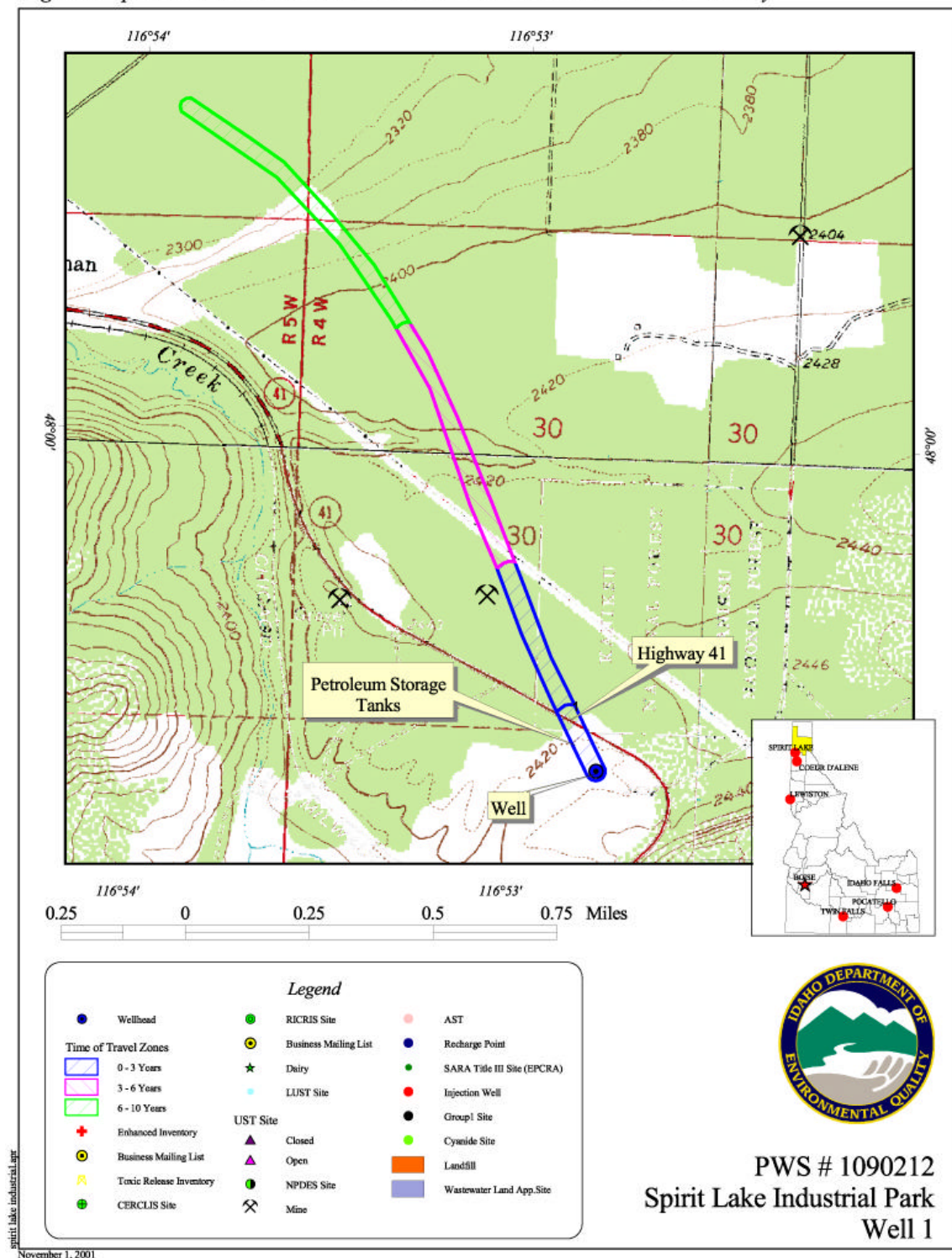
As the industrial park continues to develop, the management should consider fencing the sanitary setback zone. No herbicides, pesticides, or dust abatement chemicals should be used or stored within 50 feet of the well. It is also important to keep vehicles off the well lot.

For assistance in developing source water protection strategies please contact Tony Davis at the Coeur d'Alene Regional DEQ office at 208 769-1422.

DEQ website:

<http://www.deq.state.id.us>

Figure 1. Spirit Lake Industrial Park Delineation and Potential Contaminant Inventory.



Ground Water SusceptibilityPublic Water System Name : **SPIRIT LAKE INDUSTRIAL PARK**Source: **WELL #1**Public Water System Number : **1090212**

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1. System Construction		SCORE			
Drill Date	6/20/89				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES 2000				
Well meets IDWR construction standards	NO Well in pit	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well protected from flooding	NO Well in pit	1			
Total System Construction Score		6			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock	YES	1			
Depth to first water > 300 feet	YES	0			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		5			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A (Sanitary Setback)		Score	Score	Score	Score
Land Use Zone 1A	RANGELAND, WOODLAND	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B (3 YR. TOT)					
Contaminant sources present (Number of Sources)	YES Highway 41, Petroleum Storage	1	2	2	1
(Score = # Sources X 2) 8 Points Maximum		2	4	4	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	2	2	
4 Points Maximum		1	2	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		3	6	6	2
Potential Contaminant / Land Use - ZONE II (6 YR. TOT)					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		0	0	0	0
Potential Contaminant / Land Use - ZONE III (10 YR. TOT)					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of Zone	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		3	6	6	2
4. Final Susceptibility Source Score		12	12	12	12
5. Final Well Ranking		Moderate	Moderate	Moderate	Moderate

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.20)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking: 0 - 5 Low Susceptibility ; 6 - 12 Moderate Susceptibility; > 13 High Susceptibility.

POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.